

REMARKS

I. Status of the Claims

The title is amended as suggested by the Examiner.

The specification and abstract are amended. No new matter is added.

Claims 1-6, and 8-10 are pending in the application.

Claim 7 is cancelled without prejudice or disclaimer of the subject matter therein.

Claims 1-6, and 8 are amended. No new matter is added.

Claims 9 and 10 have been added. No new matter is added.

II. Double Patenting

The statutory type double patenting rejection of claim 7 is noted. Claim 7 is cancelled.

III. Claim Rejection 35 U.S.C. §102

The rejection of claims 1-4 under 35 U.S.C. §102(b) as being anticipated by Taniguchi (U.S. Patent No. 4,974,595) is traversed.

In the oil pump rotor assembly according to the present invention, the clearance between the external teeth and the internal teeth engaging therewith at a partition of the adjacent cells increases gradually along with increasing of the volume of the cell from minimum to maximum. As a result, the rotation of the rotors can be stabilized, and noise can be prevented.

Taniguchi discloses that the tip end 20b of the outer rotor does not interfere with the internal tooth 18a of the inner rotor at the rotational position shown in Fig. 3; that is, Taniguchi discloses

that the clearance between the teeth is maintained at a distance greater than zero. Although Taniguchi illustrates as $T1 > T2$, it is a description of the size of the clearance between the teeth along the straight line on which the geometric centers of the inner rotor and the outer rotor and the bore lie; that is, Taniguchi does not disclose the variation of the clearance between the teeth while increasing or decreasing the volume of the cell.

In the oil pump, see paragraph [0010] in the publication of the application, Pub. No.: US 2006/0239848 A1, the "... oil pump rotor assembly including: an inner rotor having "n" external teeth ("n" is a natural number); and an outer rotor having (n+1) internal teeth which are engageable with the external teeth, wherein the oil pump assembly is used in an oil pump ..." (underscoring added for emphasis). Thus, in our invention, the inner teeth and the external teeth engage each other. In Taniguchi, the teeth never engage each other. See col. 3, lines 57-66.

Amended claim 1 avoids Taniguchi by reciting, in combination, that "... the oil pump rotor assembly is used in an oil pump which, during rotation of the inner and outer rotors, draws and discharges fluid by volume change of cells formed between the external teeth of the inner rotor and the internal teeth of the outer rotor engaging therewith..." (underscoring added).

For the reasons noted above, amended claim 1 clearly avoids the reference applied. Claim 2 depends from claim 1 and, therefore, also avoids the Taniguchi reference.

Claim 3 is amended and now recites that "... the oil pump rotor assembly is used in an oil pump which, during rotation of the inner and outer rotors, draws and discharges fluid by volume change of cells formed between the external teeth of the inner rotor and the internal teeth of the outer rotor engaging therewith..." (underscoring added). For the reasons noted above, amended

independent claim 3 also avoids the Taniguchi reference and is considered to be in condition for allowance. Claim 4 depends from independent claim 3 and, therefore, is also considered to be in condition for allowance.

IV. Claim Rejection 35 U.S.C. §103

The rejection of claims 5 and 8 under 35 U.S.C. §103(a) as being unpatentable over Taniguchi in view of Hosono (U.S. Patent No. 6,077,059, "Hosono '059") is traversed.

The rejection of claim 6 under 35 U.S.C. §103(a) as being unpatentable over Taniguchi in view of Hosono '059 and further in view of Hosono et al., (U.S. Patent No. 5,813,844, "Hosono '844") is traversed.

The Examiner considers that Hosono '059 and Hosono '844 disclose the tooth surfaces of the rotors which are not disclosed by Taniguchi. However, those citations do not disclose the increase and decrease of the teeth clearance while increasing the volume of the cell].

In addition, claims 5 and 8 each depend from claim 1 and, therefore, for the reasons noted above, each clearly avoids the Taniguchi and is considered to be in condition for allowance.

Additionally, claim 6 depends from claim 1 and, also avoids the Taniguchi reference and is in condition for allowance.

New claims 9 and 10 depend from claim 1 and, therefore, are also considered to be in condition for allowance.

CONCLUSION

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

The Examiner is respectfully requested to contact the undersigned at the telephone number indicated below if the Examiner believes any issue can be resolved through either a Supplemental Response or an Examiner's Amendment.

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Respectfully submitted,

By 

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